

Informed Consent in *Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to-Consumer Contexts*

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I. Introduction

In *Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to-Consumer Contexts* (*Anticipate and Communicate*), the Presidential Commission for the Study of Bioethical Issues (Bioethics Commission) addressed the ethical challenges of incidental findings as they arise in the clinical, research, and direct-to-consumer (DTC) contexts. Incidental findings are results that arise outside the original purpose for which a test or procedure was conducted. Such findings can be challenging for recipients and for practitioners:

Discovering an incidental finding can be lifesaving, but it also can lead to uncertainty and distress without any corresponding improvement in health or wellbeing. For incidental findings of unknown significance, conducting additional follow-up tests or procedures can be risky and costly. Moreover, there is

tremendous variation among potential recipients about whether, when, and how they would choose to have incidental findings disclosed. Information that one recipient regards as an unnecessary cause of anxiety could lead another recipient to feel empowered in making health-related decisions.¹

A secondary finding is one that is actively sought by a practitioner but is not the primary target of the test or procedure. For example, a clinician who conducts large-scale genetic sequencing for the purpose of diagnosing a patient's disease might deliberately seek the variants underlying other phenotypic (observable) traits.²

Anticipate and Communicate contributes to ongoing public, professional, and policy deliberations to determine when it is ethically permissible or obligatory for clinicians, researchers, or DTC companies to disclose incidental or secondary findings to patients, participants, or consumers. The Bioethics Commission found that the provision of information and open communication about incidental and secondary findings is a crucial element in the management of incidental and secondary findings in the clinical, research, and direct-to-consumer contexts:

In all contexts, potential recipients of incidental and secondary findings—patients, research participants, and consumers—should be informed about the likelihood of such findings arising from a particular test or procedure. Providing this information enables a potential recipient to make an autonomous decision about whether and how to proceed. This disclosure also allows practitioners to anticipate and think through the consequences of conducting various tests and procedures. Open communication between practitioners and individuals, accessible and understandable documents and resources, and transparent processes in all three contexts help ensure that individuals understand risks and benefits before they consent.³

II. Learning Objectives

Students should be able to:

1. Understand the types of incidental and secondary findings, including the difference between anticipatable and unanticipatable incidental findings, and the relevance of these differences to the informed consent process.

¹ Presidential Commission for the Study of Bioethical Issues (PCSBi). (2013, December). *Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to-Consumer Contexts*. Washington, DC: PCSBi, p.2.

² PCSBi, (2013, December), op cit, p. 27.

³ Ibid, p. 5.

2. Identify the ethical and practical challenges to the informed consent process raised by incidental and secondary findings.
3. Describe key elements of informed consent regarding incidental and secondary findings in the clinical, research, and DTC contexts.
4. Describe recommendations for improving informed consent regarding incidental and secondary findings in each of these contexts.

III. Background

A. Types of Incidental Findings

In *Anticipate and Communicate* the Bioethics Commission divides the term “incidental finding” into two categories: incidental findings that are “anticipatable” and those that are “unanticipatable.” An *anticipatable incidental finding* is a finding that is known to be associated with a test or procedure and that one could expect to discover in the analysis. For example, anticipatable incidental findings often arise when using imaging technologies such as computed tomography (CT) scans because although one organ might be the intended focus of the scan, other organs also appear in the field. A CT scan of the colon might show a mass on an adjacent kidney. An *unanticipatable incidental finding* is one that could not have been anticipated given the current state of scientific knowledge. For example, an unanticipatable incidental finding might arise when a DTC genetic testing company identifies a health risk based on a genetic association that was not known at the time the consumer purchased the product.

The distinctions between anticipatable and unanticipatable incidental findings and secondary findings are relevant to the process of informed consent. Practitioners are aware that anticipatable incidental findings might arise in particular tests and procedures, and can plan for and alert patients to them as part of the informed consent process. This process could involve specifying which findings might arise, their likelihood, whether and how they will be disclosed, and any plan for further investigation or referral. Practitioners cannot precisely plan for unanticipatable findings; however, they are expected to have a plan in place to manage findings that do arise, including informing individuals of the possibility that unanticipatable incidental findings could be discovered. If a practitioner actively seeks secondary findings, these findings—along with any plan for their management—should be thoroughly described as part of the informed consent process.

B. Informed Consent in the Clinical, Research, and Direct-to-Consumer Contexts

Informing individuals about the nature of incidental and secondary findings likely to arise, and the practitioner’s plan for their management and disclosure, is critical in all contexts to ensure that individuals can make autonomous and informed decisions about whether to proceed with a

test or procedure. There are important differences between the clinical, research, and DTC contexts that should be reflected in the informed consent process.

In the **clinical context**, patients and clinicians should engage in *shared decision making*, in which the clinician encourages the patient to ask questions, state reservations, and express preferences about the disclosure and management of incidental and secondary findings as part of the informed consent process. On the one hand, for incidental findings that are of uncertain significance or for which disclosure is unlikely to benefit patients, clinicians can exercise professional discretion in deciding what level of detail, if any, to disclose while still demonstrating respect for patients' self-determination. On the other hand, if patients wish to opt out of receiving incidental or secondary findings that are clinically significant, actionable, and of serious importance to their health, then clinicians should exercise discretion. Clinicians should explain the potential benefits of receiving information about clinically actionable findings. Within certain limitations, clinicians could, on ethical grounds, decline to perform the test and elect to refer the patient elsewhere. Alternatively, clinicians can ethically agree to perform the test but not return any incidental or secondary findings.

The **research context** differs from the clinical context in that research participants are contributing to the creation of generalizable knowledge and might not receive any personal benefit from their participation.⁴ In addition, there are a number of practical factors that affect the management of incidental and secondary findings in the research context: researchers might not have the clinical expertise needed to detect and interpret anomalies in test results; the research might be conducted in a facility that is not certified to return findings to participants; and the costs of confirming, analyzing, and returning findings might interfere with the ability to complete research projects.⁵

For findings that are known to be associated with a particular modality or type of research (e.g., brain scans or whole genome sequencing), researchers have a duty to anticipate such findings and develop a plan to manage them that takes into account all of these practical considerations.⁶ Researchers must clearly communicate the plan for seeking, disclosing, and managing incidental and secondary findings to participants during the informed consent process. Researchers should ensure that through the informed consent process participants understand what to expect as a result of their decision to participate in research, including the distinction between research and clinical care. If researchers have ethical objections to allowing participants to opt out of receiving clinically significant, actionable, and lifesaving findings, they need not enroll such individuals in their research study. Delineating such exclusion criteria for study enrollment will minimize this type of ethically challenging situation once the research protocol is underway.

⁴ PCSBI, (2013, December), op cit, p. 77.

⁵ Ibid, p. 80.

⁶ Ibid, p. 88.

In the **DTC context**, consumers must be provided with the information necessary to make an informed choice about engaging in DTC testing, including information regarding the potential discovery of incidental and secondary findings. Consumers should also understand the important distinction between DTC providers and clinicians. Whereas clinicians have stringent fiduciary duties to patients (e.g., an obligation to act in the patient's best interests), DTC providers have less stringent duties, which might be further limited by contractual agreement. However, DTC providers with clinical expertise retain some fiduciary duties. In addition, all DTC professionals, by virtue of their knowledge and skills and the extent to which they gain access to and intervene in consumers' lives, have a responsibility to respond appropriately to the consequences of their services.⁷ The informed consent process for DTC testing should include clear and comprehensible information about what anticipatable findings are commonly associated with different tests, what findings will be disclosed, and any results that will not be returned to consumers.

C. Bioethics Commission Recommendations

Of the 17 recommendations the Bioethics Commission made in *Anticipate and Communicate*, five address the role of informed consent in the management of incidental and secondary findings. The first is an overarching recommendation that applies to all contexts:

Recommendation 1

Clinicians, researchers, and direct-to-consumer providers should describe to potential recipients incidental and secondary findings that are likely to arise or be sought from the tests and procedures conducted. Practitioners should inform potential recipients about their plan for disclosing and managing incidental and secondary findings, including what findings will and will not be returned.⁸

The remaining recommendations address informed consent more specifically in the clinical, research, or DTC contexts.

Recommendation 6

Clinicians should make patients aware that incidental and secondary findings are a possible, or likely, result of the tests or procedures being conducted. Clinicians should engage in shared decision making with patients about the scope of findings that will be communicated and the steps to be taken upon discovery of incidental findings. Clinicians should respect a patient's preference not to know about incidental or secondary findings to the extent consistent with a clinician's fiduciary duty.⁹

⁷ Ibid, p. 101.

⁸ PCSBI, (2013, December), op cit, p. 44.

⁹ Ibid, p. 64.

Recommendation 7

In communicating difficult to understand information about incidental and secondary findings, clinicians should consider providing patients with decision aids and graphical representations, using population-based evidence, and describing a patient's absolute risk (the chance of any person getting a disease) rather than or in addition to relative risk (whether a person's chance is higher or lower than another's).¹⁰

Recommendation 11

During the informed consent process, researchers should convey to participants the scope of potential incidental or secondary findings, whether such findings will be disclosed, the process for disclosing these findings, and whether and how participants might opt out of receiving certain types of findings.¹¹

Recommendation 15

Direct-to-consumer companies should provide consumers with sufficient information about their services to enable consumers to make informed decisions regarding purchasing their product. Companies should clearly communicate the scope of procedures and the types of findings that the companies could or will discover and disclose, as well as any findings that they know in advance will not be disclosed.¹²

IV. Reading

For the purposes of discussion, students should download and read the following Bioethics Commission materials (reports are available for download on the Bioethics Commission's website at www.bioethics.gov under "Projects"):

Anticipate and Communicate: Ethical Management of Incidental and Secondary Findings in the Clinical, Research, and Direct-to-Consumer Contexts, pp. 25-29 ("Taxonomy of Incidental Findings").

Anticipate and Communicate, pp. 33-41 ("Modalities and Probable Incidental and Secondary Findings").

Anticipate and Communicate, pp. 44-45 ("Informing Persons Tested").

Anticipate and Communicate, pp. 58-67 ("Ethical Considerations of Incidental and Secondary Findings in the Clinical Context," and "Consent in the Clinical Context").

¹⁰ Ibid, p. 66.

¹¹ Ibid, p. 87.

¹² PCSBI, (2013, December), op cit, p. 104.

Anticipate and Communicate, pp. 82-88 (“Ethical Considerations of Incidental and Secondary Findings in the Research Context,” and “Consent in the Research Context”).

Anticipate and Communicate, pp. 100-104 (“Ethical Considerations of Incidental and Secondary Findings in the Direct-to-Consumer Context,” and “Consent in the Direct-to-Consumer Context”).

V. Discussion Questions

The following questions are based on the information provided above and through the indicated reading and are intended to reinforce important aspects of informed consent highlighted in *Anticipate and Communicate*. Important points are noted with each question to help the instructor guide a group discussion. The “Additional Resources” section is a helpful source in answering these questions.

1. Why is it important for clinicians to determine patient preferences with respect to disclosure of incidental and secondary findings before conducting a test or procedure?

Starting points for discussion:

- a. Patients might or might not wish to be informed about incidental or secondary findings.
 - i. A patient might ask to be informed only if the findings are clinically significant, actionable, and of serious importance to their health, for example, a genetic mutation indicating an increased risk of breast cancer.
 - ii. A patient might express a preference not to be informed about incidental or secondary findings that are not clinically actionable, for example, the abnormal gene associated with Huntington’s disease, for which there is currently no treatment available.
- b. Discussing patient preferences before the test or procedure shows respect for patient autonomy by assisting patients in deciding whether and how to proceed with testing, and can inform clinicians’ professional judgment in deciding whether disclosing or pursuing incidental findings might do more harm than good for a particular patient.
- c. Knowing patient preferences—particularly if the patient is inclined to opt out of receiving incidental or secondary findings that are clinically significant, actionable, and of serious importance to their health—allows clinicians to exercise their own professional discretion before conducting a test or procedure.

2. How can clinicians foster better patient understanding of complicated information about incidental and secondary findings during the informed consent process and facilitate shared decision making?

Starting points for discussion:

- a. Clinicians can present relevant information about incidental and secondary findings clearly and comprehensibly.
- b. In the process of shared decision making clinicians should be aware of factors that shape patients' perceptions of risk, for example, their health status or their family's health experiences.
- c. Clinicians can facilitate shared decision making by effectively communicating with patients about risk, describing their absolute risk (the chance of any person getting a disease), rather than or in addition to their relative risk (whether a person's chance is higher or lower than another's). Clinicians should give patients enough information so that they understand their options and can make informed decisions, and should also minimize unnecessary anxiety resulting from misunderstood perceptions of risk.¹³
- d. Clinicians can use decision aids and graphical representations to help patients understand complex information about risk.

3. The research context differs from the clinical context in a number of ways. What are the key differences between these contexts that are relevant to the management of incidental and secondary findings? How should these differences be reflected in the informed consent process for each context?

Starting points for discussion:

- a. Key differences include:
 - i. Research participants are not receiving clinical care and should not expect to receive personal medical benefit from research participation.
 - ii. The duties of clinicians and researchers (to patients and participants) are different. Clinicians have strong fiduciary duties to act in the patient's best interest.¹⁴ Researchers have an obligation to participants to design and implement research in a responsible manner.¹⁵

¹³ PCSBI, (2013, December), op cit, p. 66.

¹⁴ PCSBI, (2013, December), op cit, p. 60.

¹⁵ Ibid, p. 13.

- iii. Researchers might not have the clinical expertise needed to detect, interpret, or report incidental findings.
 - iv. Research might be conducted in facilities that are not licensed or certified to provide test results to patients.
 - v. Confirming, analyzing, and returning incidental findings in a responsible manner can be costly and might be outside the scope of the research.
- b. Researchers should respect participant's autonomy by informing them about the possibility of discovering incidental or secondary findings and the plan for disclosing and managing any such findings. Communicating to participants in advance the scope of incidental and secondary findings that researchers plan to disclose is one way to respect this autonomy by ensuring participants understand what to expect from the study, including the difference between research and clinical care.
 - c. Clinicians can support patient autonomy by ensuring that patients are informed that a test or procedure might give rise to anticipatable incidental findings and about the possibility of unanticipatable incidental findings, and by engaging with patients in a process of shared decision making to understand their preferences about how such findings might be returned and managed.
- 4. In *Anticipate and Communicate*, the Bioethics Commission recognizes that patients and research participants might prefer not to know about certain incidental and secondary findings, and that this preference should generally be honored. How can an individual's decision to opt out of receiving this information be addressed in the clinical and research contexts?**

Starting points for discussion:

- a. In the clinical context, clinicians should engage in a process of shared decision making with the patient, and should respect a patient's preference not to be informed about incidental and secondary findings to the extent consistent with their fiduciary duty to the patient. The principles of beneficence and nonmaleficence can inform a clinician's professional judgment about whether pursuing or disclosing an incidental finding would do more harm than good for a particular patient.
- b. If patients wish to opt out of receiving incidental or secondary findings that are clinically significant, actionable, and of serious importance to their health, then in

some circumstances clinicians could exercise discretion and use their professional judgment in deciding how to proceed.

- c. Clinicians are obliged by law to report certain infectious diseases. If one of these diseases is discovered as an incidental finding then the patient, and the public health department, must be informed regardless of the patient's preferences. This should be made clear in the informed consent process.
- d. In the research context, if researchers have ethical objections to allowing participants to opt out of receiving clinically significant, actionable, and lifesaving incidental and secondary findings, they could choose to not enroll such participants in their study. The exclusion criteria should be specified at the beginning of the study. If participants opt out of receiving incidental findings and a researcher discovers a potentially lifesaving unanticipatable incidental finding, the researcher should seek advice from the institutional review board (IRB) about whether and how to disclose the finding.

5. In what ways is the DTC context different from the clinical context with respect to the obligation to inform customers of the potential for incidental findings? Are these differences ethically relevant?

Starting points for discussion:

- a. DTC providers generally do not provide services that someone would expect from a clinician when undergoing a test (e.g., specialist referrals, follow-up consultations, or counseling).
- b. DTC providers have less stringent duties to consumers than the fiduciary duties clinicians have to act in furtherance of the patient's best interests. In addition, the duties of DTC providers might be limited or circumscribed by the contract into which consumers enter with providers. However, DTC providers with clinical expertise retain some fiduciary duties, and all DTC providers have a responsibility to respond appropriately to the consequences of their services.
- c. Consumers need to be aware of the services that DTC providers do and do not offer so that they can make an informed and autonomous choice about whether to enter into the transaction with the DTC provider.

6. What information should DTC providers give to consumers before entering into a contract or transaction, and why?

Starting points for discussion:

- a. DTC providers should inform consumers about the scope of the test and the results that will be included in the commercial arrangement. They should also inform consumers about any anticipatable incidental findings associated with the test or procedure that they are considering.
- b. DTC providers should inform consumers of any findings that will not be returned to consumers, as well as the procedure for managing unanticipatable incidental findings that are discovered after the consumer's initial purchase/agreement. Consumers should be informed about whether their sample might be retested in the future for different findings and whether and how they will be notified of any new results.¹⁶

VI. Problem-Based Learning

Scenario A. *A patient suffering from glaucoma is preparing to undergo genetic testing to look for a possible genetic link to the disease that could inform her treatment. The patient's clinician tells her that in addition to information about the genetic basis of her glaucoma the genetic testing might reveal other unrelated findings. The patient is alarmed at this possibility and expresses reservations about undergoing the test.*

The following additional reading from *Anticipate and Communicate* might be useful in considering this scenario:

Anticipate and Communicate, pp. 34-37 ("Large-Scale Genetic Sequencing").

Anticipate and Communicate, pp. 55-58 ("Practical Considerations of Incidental and Secondary Findings in the Clinical Context" and "Legal Considerations of Incidental and Secondary Findings in the Clinical Context").

1. What issues can the clinician discuss with the patient in this scenario?

Starting points for discussion:

- a. The clinician can engage with the patient in a process of shared decision making, during which the clinician can explain the types of incidental findings that might

¹⁶ PCSBI, (2013, December), op cit, p. 37.

arise from the test, and learn about the patient's preferences about how those findings might be disclosed, managed, or further investigated.

- b. The clinician can explain the potential benefits of receiving information about findings that are clinically actionable in addition to the benefits of undergoing the test to inform the glaucoma treatment (the primary finding).
- c. The clinician can describe the risk of pertinent findings to help the patient make the most informed decision.

2. What options does the clinician have for managing the return of any incidental findings to this patient?

Starting points for discussion:

- a. The patient can be given an opportunity to express her preferences for disclosure of any incidental or secondary findings, and the clinician should respect these preferences to the extent consistent with her fiduciary duty to the patient.
- b. The clinician might have a policy of returning certain incidental or secondary findings, such as that recommended by the American College of Medical Genetics and Genomics.¹⁷ In this case the clinician can discuss this policy with the patient and ensure that she understands which findings will be analyzed, returned to the clinician, and disclosed to the patient.
- c. If patients wish to opt out of receiving incidental or secondary findings that are clinically significant, actionable, and of serious importance to their health, then clinicians can exercise discretion and use their professional judgment in deciding how to proceed.
- d. Clinicians can use professional discretion to decide what level of detail about incidental findings to disclose to patients, taking into account the patient's preferences, the clinical significance of the findings, and the likelihood of benefit of disclosure.

Scenario B. *An otherwise healthy patient is admitted to the emergency department with abdominal pain and nausea. The emergency department physician suspects food poisoning, but orders an abdominal CT scan in order to rule out appendicitis. The CT scan shows that the patient does not have appendicitis; however, it reveals a small nodule located on an adrenal gland. During discharge the physician recommends that the patient follow up with his primary*

¹⁷ Green, R.C., et al. (2013). ACMG recommendations for reporting of incidental findings in clinical exams and genomic sequencing. *Genetics in Medicine*, 15(4), 565-574.

care provider about the nodule. The patient, surprised and concerned about the unexplained finding, leaves the hospital in distress.

The following additional readings provide useful information when considering this scenario:

Anticipate and Communicate, p. 62 (“Case Study: Incidental Finding Arising from a CT Scan”).

Kole, J. and A. Fiester. (2013). Incidental findings and the need for a revised informed consent process. *American Journal of Roentgenology*, 201(5), 1064-1068.

Ofri, D. (2013, January 17). The Fallout of a Chance Medical Finding. *New York Times*. Retrieved January 9, 2014, from <http://well.blogs.nytimes.com/2013/01/17/the-fallout-of-a-chance-medical-finding/>.

1. What might have been done differently in this clinical encounter to minimize the patient’s distress about the incidental finding?

Starting points for discussion:

- a. The clinician could have explained to the patient before the test the possibility that the CT scan would reveal incidental findings.
- b. The clinician could have ascertained how the patient would prefer to be informed of any incidental findings, and how they might be managed (e.g., following up with a primary care provider).

2. Ninety-eight percent of the time incidentally found nodules like the one discovered in this patient are benign.¹⁸ How could this information affect the way in which clinicians discuss incidental findings with patients before they undergo an abdominal CT scan if at all?

Starting points for discussion:

- a. Before conducting the test, clinicians can explain to patients the possibility that incidental findings could arise during a CT scan, as well as the likelihood that certain findings will be clinically significant or require further investigation. This

¹⁸ PCSBI (2013, December), op cit., p. 62.

information gives the patient a context in which to receive information about incidental findings that might alleviate unnecessary concern.¹⁹

- b. Clinicians can facilitate shared decision making by effectively communicating with patients about risk, describing their absolute risk (the chance of any person getting a disease), rather than or in addition to their relative risk (whether a person's chance is higher or lower than another's). Clinicians should give patients enough information so that they understand their options and can make informed decisions, and should also minimize unnecessary anxiety resulting from misunderstood perceptions of risk.²⁰
- 3. It might be argued that clinicians working under intense time constraints cannot reasonably be expected to have an informed consent discussion prior to every CT scan. What reasons could you give to justify these discussions?**

Starting points for discussion:

- a. In the clinical context an informed consent discussion could save time in the long term by minimizing patient anxiety and the need for further testing.²¹

Scenario C. *As part of a study, researchers intend to collect blood samples from participants to determine iron levels following administration of a trial drug. Blood samples can be the source of incidental or secondary findings that might indicate a health issue of concern, for example, elevated blood sugar, possibly indicating diabetes, or irregularly shaped blood cells that could indicate sickle cell disease or carrier status. Therefore as part of the study protocol the researchers formulate a plan to manage these anticipatable incidental findings should they arise.*

1. What issues should researchers consider when developing this plan?

Starting points for discussion:

- a. Whether the testing of the samples will be conducted by a certified laboratory legally allowed to return findings to participants.
- b. The clinical and reproductive significance of the findings.
- c. The potential risks and benefits of disclosing findings to participants.

¹⁹ Kole, J., and A. Fiester (2013). Incidental findings and the need for a revised informed consent process. *American Journal of Roentgenology*, 201(5), 1064-1068, at p. 1067.

²⁰ PSCBI (2013, December), op cit., p. 66.

²¹ Kole, J., and A. Fiester (2013), op cit., p. 1067.

- d. A description of the research team's responsibilities following disclosure of such a finding.
- e. Specific information regarding the method of disclosure.
- f. A process for managing unanticipatable incidental findings.

2. How and when should this plan be communicated to participants?

Starting points for discussion:

- a. During the informed consent process researchers should notify participants about the possibility of anticipatable and unanticipatable incidental findings, including lifesaving incidental findings, and should communicate the plan for managing them.
- b. Disclosing and discussing a plan for managing incidental findings with research participants respects their ability to make an informed decision about whether to participate in research and ensures that they understand what to expect as a result of their decision to participate.

3. How might a researcher respond if a potential participant expresses a preference not to be informed of any incidental or secondary findings?

Starting points for discussion:

- a. A researcher might have ethical objections to allowing participants to opt out of receiving clinically significant, actionable, and lifesaving findings. In this case researchers need not enroll individuals in their study who do not wish to receive these types of findings. Delineating such exclusion criteria at the beginning of a study minimizes ethical challenges if an incidental finding is discovered after the research is underway.
- b. If researchers do not object to allowing participants to opt out of receiving incidental findings—and participants are well informed regarding what opting out could mean for their health and wellbeing—researchers can enroll such participants in the research.
- c. In the event a researcher discovers a potentially lifesaving unanticipatable incidental finding for a participant who has opted out of receiving incidental findings, the investigator should seek advice from an IRB about whether and how to disclose it.

Scenario D. *A first-year medical student receives an invitation from colleagues to participate in a functional magnetic resonance imaging (fMRI) study. Participants will have their brain scanned while performing a memory task. The medical student agrees to participate. Shortly after finishing the study she is contacted by her colleagues, who tell her they have found an anomaly on her scans. The student rushes to the emergency department where after further evaluation doctors conclude that she has a malformation and recommend surgery to remove the mass.*

The following additional reading from *Anticipate and Communicate* might be useful in considering this scenario:

Anticipate and Communicate, p. 76 (“Sarah Hilgenberg Case Study”).

Anticipate and Communicate, pp. 78-80 (“Practical Considerations of Incidental and Secondary Findings in the Research Context”).

1. What factors can the researchers consider before contacting the participant to inform her of this incidental finding?

Starting points for discussion:

- a. Is the finding clinically significant and does it present the possibility of serious harm to the participant?
- b. Is the finding clinically actionable and does it require urgent or immediate action on the part of the participant?
- c. Did the participant express any preferences during the informed consent process about the return of incidental or secondary findings?

2. Which ethical principles are relevant to the researchers’ management of the incidental finding in this scenario?

Starting points for discussion:

- a. The principle of respect for persons recognizes an individual’s capacity for self-determination. To demonstrate respect for persons, researchers can inform participants during the informed consent process about the possibility of incidental and secondary findings, and the plan for their management, including which findings the researchers plan to disclose to participants. This information allows potential participants to consider the ramifications of participating in the research and to make an autonomous decision about whether to participate.

- b. The principle of beneficence requires that researchers demonstrate concern for the wellbeing of others, which might include considering whether the benefits of disclosing an incidental finding outweigh the risks of disclosure. Disclosing a finding of a brain malformation that is potentially damaging but treatable allows the participant to avoid a potential harm, thereby providing a benefit.

Scenario E. *Excited about the impending arrival of their first child a couple decides to have an entertainment three-dimensional fetal ultrasound that will provide a video and keepsake images of the fetus. After researching different companies in their area that provide this service they choose one that meets their budget. The company's website includes information about how long the ultrasound will take and what they can expect to see (e.g., the fetus yawning or stretching). The company also notes on their website that the three-dimensional ultrasounds are not intended to look for or diagnose any fetal abnormalities.*

1. What additional information might this couple need to make an informed decision about whether to have the ultrasound?

Starting points for discussion:

- a. Whether the technicians will be actively looking for any findings secondary to the nonmedical purpose of the ultrasound.
- b. The possibility that an incidental finding will be discovered during the ultrasound.
- c. Whether or how technicians will communicate any incidental or secondary findings detected during the ultrasound.
- d. If the provider plans to disclose an incidental or secondary finding, what level of expertise they possess in understanding and communicating such a finding.
- e. What services, if any, the provider offers after the ultrasound, such as further information about abnormalities or counseling.
- f. If there are any anticipatable incidental findings that the provider will not disclose.

2. What ethical obligations, if any, might the DTC provider in this scenario have to the potential consumers?

Starting points for discussion:

- a. DTC providers should provide consumers with sufficient information about their services to make an informed decision about whether to purchase their product.

This information can include the scope of the procedure, the likelihood of any incidental findings, the plan for disclosing any incidental findings, and any results that the company will not disclose.

- b. DTC providers are unlike clinicians in that they do not have an obligation to act in furtherance of the consumer's best interests. In addition, DTC providers can limit their obligations to consumers by contract (e.g., some providers require proof that their customers are receiving prenatal care and have already received a medical diagnostic ultrasound before undergoing the elective ultrasound). These requirements can limit the provider's obligation to provide medical advice or follow-up care.

Scenario F. *Knowing that cancer, alcoholism, and bipolar disorder run in their family, Jackie and her brother Alex send saliva samples to a DTC genetic testing company. Jackie and Alex read their reports from the company online, and decide to opt in to an additional service that links users to close relatives who have also submitted genetic information. The results of this service show that Alex and Jackie share only one quarter of their DNA, which means they are not siblings (who share 50 percent of their DNA), but could be uncle and niece, grandfather and granddaughter, or half siblings. Confused and distressed by this news Jackie and Alex ask their mother about the result, and she tells them that they do not share the same father. Although the DTC company informs its users that genetic testing can reveal results about biological relationships that could "evoke strong emotions" or "alter your worldview," Jackie and Alex are shocked to discover this anticipatable incidental finding.*

The following additional reading from *Anticipate and Communicate* might be useful in considering this scenario:

Anticipate and Communicate, p. 96 ("Direct-to-Consumer Genetic Testing").

Anticipate and Communicate, p. 105-108 ("Industry-Wide Best Practices in the Direct-to-Consumer Context").

1. What steps can DTC providers take to reduce the distress caused by results about biological relationships like those returned to Jackie and Alex? What further steps can they take?

Starting points for discussion:

- a. DTC providers can emphasize in their terms of service that genetic testing might reveal results that are surprising, and that might not be welcome or positive.
- b. DTC providers can adopt procedural safeguards for particularly sensitive findings. For example, if results are returned via the web, requiring that consumers pass

through several layers of information on its web portal before being able to access sensitive results in “locked reports.”

- c. DTC providers should develop best practices for facilitating access to counseling for consumers who receive sensitive or unexpected results.
- 2. In this scenario Jackie and Alex both consent to the genetic testing service and discover their results together. What issues might arise if only one of the siblings had agreed to purchase the testing service?**

Starting points for discussion:

- a. Genetic information has implications for the individual tested and also for biologically linked family members. Individuals undergoing genetic testing should consider before undergoing testing whether they will inform family members of any results that might have implications for them.
- b. The principle of beneficence requires that individuals consider and act to advance another’s wellbeing. This principle might impose some obligation on individuals to inform family members of incidental findings from genetic testing that have implications for them.

VII. Exercises

Exercise A. *Find and access a website for a DTC testing provider. Search the website for information provided to consumers about the test and test results.*

- 1. How much information is the consumer given about findings they will receive as part of the test? List information regarding: anticipatable incidental and secondary findings; disclosure of incidental or secondary findings; findings that will not be returned; services that are offered to help consumers interpret findings.**
- 2. If you were considering purchasing a DTC testing service from this provider, what further information might you need to make an informed decision?**
- 3. Did you find the information provided on the website to be clear and comprehensible? Why or why not? How might information have been presented differently to make it easier to understand?**
- 4. Based on the information provided on the website, what is your understanding of the provider’s policies regarding incidental and secondary findings?**

Exercise B. *Imagine you are a researcher conducting a study that will involve participants undergoing a brain scan. As a researcher in this area you know that more than 5 percent of brain scans performed on adults show incidental findings,²² and approximately 2 to 8 percent of those will require referral for further evaluation.²³*

1. **Design an informed consent document for prospective participants. The Bioethics Commission’s Informed Consent: Background module outlines some general elements of informed consent that might be helpful for this exercise. Additionally, the following resources provide useful information:**

Anticipate and Communicate, pp. 39-41 (“Imaging”).

Illes, J., et al. (2008). Practical approaches to incidental findings in brain imaging research. *Neurology*, 70, 384-390.

Royal, J.M., and B.S. Peterson. (2008). The risks and benefits of searching for incidental findings in MRI research scans. *Journal of Law, Medicine, and Ethics*, 36(2), 305-314.

Common Rule at 45 C.F.R. § 46.116.

2. **Note elements of the research plan that are particular to the testing modality being used (brain scanning), including the quality of the scans and who will review them.**

VIII. Glossary of Terms

Anticipatable incidental finding: A finding that is known to be associated with a test or procedure. Anticipatable incidental findings need not be common or likely to occur; rather, the possibility of finding them is known.

CT (computed tomography) scan: A clinical imaging technique that processes X-ray images from multiple angles to create tomographic images of the body.

Direct-to-consumer (DTC) test: A test (e.g., a scan or genetic sequencing) sold to consumers directly, without direct involvement of a medical professional.

Fiduciary duty: A duty held by someone to whom power is entrusted (e.g., a physician) to act in the best interests of a beneficiary (e.g., a patient).

²² Nelson, C.A. (2008). Incidental findings in magnetic resonance imaging (MRI) brain research. *Journal of Law, Medicine, and Ethics*, 36(2), 315-319.

²³ Illes, J. et al. (2008). Practical approaches to incidental findings in brain imaging research. *Neurology*, 70, 384-390; Illes, J., and V.N. Chin (2008). Bridging philosophical and practical implications of incidental findings in brain research. *Journal of Law, Medicine and Ethics*, 36(2), 298-304.

Large-scale genetic sequencing: The ordering of the billions of base pairs—the As, Ts, Cs, and Gs—that make up our genetic code (e.g., whole genome sequencing, whole exome sequencing, and other next-generation genomic analyses).

Secondary finding: A finding that is actively sought by the practitioner but is not the primary target of the test being conducted.

Unanticipatable incidental finding: An incidental finding that could not have been anticipated given the current state of scientific knowledge.

IX. Additional Resources

American College of Medical Genetics and Genomics. (2013). Incidental findings in clinical genomics: A clarification – A policy statement of the American College of Medical Genetics and Genomics, Bethesda, MD. Retrieved from https://www.acmg.net/docs/Incidental_Findings_in_Clinical_genomics_A_Clarification.pdf.

Berg, J.S., et al. (2011). Deploying whole genome sequencing in clinical practice and public health: Meeting the challenge one bin at a time. *Genetics in Medicine*, 13(6), 499-504.

Chervenak, F.A. and L.B. McCullough. (2005). An ethical critique of boutique fetal imaging: A case for the medicalization of fetal imaging. *American Journal of Obstetrics and Gynecology*, 192(1), 31-33.

Green, R.C., et al. (2013). ACMG recommendations for reporting of incidental findings in clinical exams and genome sequencing. *Genetics in Medicine*, 15(4), 565-574.

Gutmann, A. (2013). The Bioethics Commission on incidental findings. *Science*, 342, 1321-1323.

Illes, J., et al. (2008). Practical approaches to incidental findings in brain imaging research. *Neurology*, 70, 384-390.

Illes, J., and V.N. Chin. (2008). Bridging philosophical and practical implications of incidental findings in brain research. *Journal of Law, Medicine, and Ethics*, 36(2), 298-304.

Kole, J., and A. Fiester. (2013). Incidental findings and the need for a revised informed consent process. *American Journal of Roentgenology*, 201(5), 1064-1068.

Nelson, C.A. (2008). Incidental findings in magnetic resonance imaging (MRI) brain research. *Journal of Law, Medicine, and Ethics*, 36(2), 315-319.

Ofri, D. (2013, January 17). The Fallout of a Chance Medical Finding. *New York Times*. Retrieved January 9, 2014, from <http://well.blogs.nytimes.com/2013/01/17/the-fallout-of-a-chance-medical-finding/>.

Parker, L.S. (2006). Best laid plans for offering results go awry. *American Journal of Bioethics*, 6(6), 22-23.

Ravitsky, V., and B.S. Wilfond. (2006). Disclosing individual genetic results to research participants. *American Journal of Bioethics*, 6(6), 8-17.

Royal, J.M., and B.S. Peterson. (2008). The risks and benefits of searching for incidental findings in MRI research scans. *Journal of Law, Medicine, and Ethics*, 36(2), 305-314.